

1. A method of loading program code, data, and control information into a processing engine, said method comprising:

reading an identification bit received
via said input data path, said identification bit

processing program data received via said input data path in accordance with said identification bit indicating program data.

3. The method of claim 1 wherein said reading an identification bit further comprises reading an identification bit corresponding to setup data.

identifying a piece of storage in said
processing engine, wherein said piece of storage is one
5 of a register file, a memory, and a program counter;
and

supplying a value to be stored in said piece of storage.

5. The method of claim 1 wherein said processing setup data comprises:

loading a memory address of a first instruction of a program; and

5 loading said program in a block of memory, wherein said loading includes storing a set of instructions in sequential order beginning with said first instruction at said memory address and
10 incrementing said memory address for each subsequent instruction.

6. The method of claim 1 wherein said processing setup data comprises:

loading a value into a register file counter;

5 loading a constant at said value; and incrementing said register file counter for loading a second constant.

7. The method of claim 1 wherein said reading an identification bit further comprises reading an identification bit corresponding to program data.

8. The method of claim 1 wherein said processing program data comprises:

fetching an instruction of a program at a memory address;

5 decoding said instruction; executing said instruction; and storing a result from said executing said instruction.

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9. The method of claim 8 further comprising incrementing said memory address to fetch a second instruction.

10. The method of claim 1 further comprising propagating an input value from said single input data path through an execution pipeline to an output data path without said input value being changed.

11. The method of claim 10 further comprising generating output data identification signals to allow said input value to be interleaved with said data.

12. A method of loading setup data and program data into a computer processing engine, said method comprising:

receiving said setup data and said
5 program data in a single input data stream, said setup
data and said program data each including pieces of
input data;

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        providing identification of each piece
of input data to indicate whether said piece of input
10 data is setup data or program data;

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automatically switching said processing engine from setup mode to run mode when said identification indicates program data after a most recent prior identification had indicated setup data;

15 and

automatically switching said processing engine from run mode to setup mode when said identification indicates setup data after a most recent prior identification had indicated program data.

14. The method of claim 12 wherein said
automatically switching said processing engine from
setup mode to run mode further comprises processing
program data by executing a stored instruction
sequence.

16. The method of claim 12 further comprising waiting in one of a setup mode or run mode until a next said piece of input data is received.

18. The data processing engine of claim 17
wherein said information comprises pieces of input
data, each piece of input data including one of:
a setup identification bit and said
5 setup data; and

a program identification bit and said program data.

19. The data processing engine of claim 17 further comprising an input data identification path coupled to said control logic that transports setup and program identification bits.

20. The data processing engine of claim 19 wherein said execution pipeline executes a pass-through instruction allowing setup data to propagate through said execution pipeline without modification when said
5 control logic reads a setup identification bit received via said input data identification path.

21. The data processing engine of claim 19 wherein said execution pipeline processes said program data when said control logic reads a program identification bit received via said input data
5 identification path.

22. The data processing engine of claim 17 further comprising an input data identification path coupled to said control logic that transports identification bits indicating either setup data or
5 program data, wherein said control logic reads an identification bit received via said input data identification path and determines whether said identification bit indicates setup data or program data.

23. A computer processing engine comprising:
an execution pipeline comprising:
a first input coupled to receive
setup data and program data from the same input data
5 path,

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Chemical analysis of the samples		Calculated values		Found values	
Element	Calculated	Found	Element	Calculated	Found
C	68.12	67.85	H	4.12	4.05
N	11.88	11.75	O	16.00	15.85
Cl	10.00	9.95			
Br	0.90	0.85			
I	0.10	0.05			
S	0.00	0.00			
P	0.00	0.00			
K	0.00	0.00			
Na	0.00	0.00			
Ca	0.00	0.00			
Mg	0.00	0.00			
Fe	0.00	0.00			
Zn	0.00	0.00			
Cu	0.00	0.00			
Mn	0.00	0.00			
Ba	0.00	0.00			
Al	0.00	0.00			
Si	0.00	0.00			
As	0.00	0.00			
Se	0.00	0.00			
Te	0.00	0.00			
Pb	0.00	0.00			
Co	0.00	0.00			
Ni	0.00	0.00			
Mo	0.00	0.00			
V	0.00	0.00			
Cr	0.00	0.00			
Mg	0.00	0.00			
Ca	0.00	0.00			
Na	0.00	0.00			
K	0.00	0.00			
Li	0.00	0.00			
Rb	0.00	0.00			
Cs	0.00	0.00			
Ba	0.00	0.00			
Sr	0.00	0.00			
Y	0.00	0.00			
Zr	0.00	0.00			
Nb	0.00	0.00			
Mo	0.00	0.00			
Ta	0.00	0.00			
W	0.00	0.00			
Re	0.00	0.00			
Os	0.00	0.00			
Ir	0.00	0.00			
Pt	0.00	0.00			
Au	0.00	0.00			
Hg	0.00	0.00			
Tl	0.00	0.00			
Pb	0.00	0.00			
Bi	0.00	0.00			
Po	0.00	0.00			
At	0.00	0.00			
Rn	0.00	0.00			
Ac	0.00	0.00			
Th	0.00	0.00			
Pa	0.00	0.00			
U	0.00	0.00			
Np	0.00	0.00			
Pu	0.00	0.00			
Am	0.00	0.00			
Cm	0.00	0.00			
Bk	0.00	0.00			
Cf	0.00	0.00			
Es	0.00	0.00			
Fm	0.00	0.00			
Md	0.00	0.00			
No	0.00	0.00			
Lr	0.00	0.00			

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Br	0.90	0.85			
I	0.10	0.05			
S	0.00	0.00			
P	0.00	0.00			
K	0.00	0.00			
Na	0.00	0.00			
Ca	0.00	0.00			
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Zr	0.00	0.00			
Nb	0.00	0.00			
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Os	0.00	0.00			
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Tl	0.00	0.00			
Pb	0.00	0.00			
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Po	0.00	0.00			
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Rn	0.00	0.00			
Ac	0.00	0.00			
Th	0.00	0.00			
Pa	0.00	0.00			
U	0.00	0.00			
Np	0.00	0.00			
Pu	0.00	0.00			
Am	0.00	0.00			
Cm	0.00	0.00			
Bk	0.00	0.00			
Cf	0.00	0.00			
Es	0.00	0.00			
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Ba	0.00	0.00			
Al	0.00	0.00			
Si	0.00	0.00			
As	0.00	0.00			
Se	0.00	0.00			
Te	0.00	0.00			
Pb	0.00	0.00			
Co	0.00	0.00			
Ni	0.00	0.00			
Mo	0.00	0.00			
V	0.00	0.00			
Cr	0.00	0.00			
Mb	0.00	0.00			
La	0.00	0.00			
Ce	0.00	0.00			
Pr	0.00	0.00			
Nd	0.00	0.00			
Pm	0.00	0.00			
Sm	0.00	0.00			
Eu	0.00	0.00			
Gd	0.00	0.00			
Tb	0.00	0.00			
Dy	0.00	0.00			
Ho	0.00	0.00			
Er	0.00	0.00			
Tm	0.00	0.00			
Yb	0.00	0.00			
Lu	0.00	0.00			
Sc	0.00	0.00			
Ti	0.00	0.00			
V	0.00	0.00			
Cr	0.00	0.00			
Mn	0.00	0.00			
Fe	0.00	0.00			
Co	0.00	0.00			
Ni	0.00	0.00			
Cu	0.00	0.00			
Zn	0.00	0.00			
Ga	0.00	0.00			
Ge	0.00	0.00			
As	0.00	0.00			
Se	0.00	0.00			
Br	0.00	0.00			
Kr	0.00	0.00			
Rb	0.00	0.00			
Sr	0.00	0.00			
Zr	0.00	0.00			
Nb	0.00	0.00			
Mo	0.00	0.00			
Tc	0.00	0.00			
Ru	0.00	0.00			
Rh	0.00	0.00			
Pd	0.00	0.00			
Ag	0.00	0.00			
Cd	0.00	0.00			
In	0.00	0.00			
Sn	0.00	0.00			
Pb	0.00	0.00			
Bi	0.00	0.00			
Po	0.00	0.00			
At	0.00	0.00			
Rn	0.00	0.00			
Ac	0.00	0.00			
Th	0.00	0.00			
Pa	0.00	0.00			
U	0.00	0.00			

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input data path is setup data.

5

logic.

5

10

claim 23 wherein said control logic:

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means for receiving said setup data and said program data in a single input data stream, said setup data and said program data each including pieces of input data;

means for providing identification of
each piece of input data to indicate whether said piece
10 of input data is setup data or program data;

means for automatically switching said
processing engine from setup mode to run mode when said
identification indicates program data; and

means for automatically switching said
15 processing engine from run mode to setup mode when said
identification indicates setup data.

35. A data processing engine comprising:

a single input data path means for
receiving information that includes program data and
setup data;

5 execution pipeline means coupled to said
input data path for performing arithmetic and logic
operations; and

control logic means coupled to said
execution pipeline for determining whether information
10 received on said input data path is setup data or
program data.

36. A computer processing engine comprising:

execution pipeline means for performing
arithmetic and logic operations, said pipeline means
comprising:

5 a first input coupled to receive
setup data and program data from the same input data
path,

a second input, and
an output;

10 memory means comprising:

a first input coupled to said
output of said execution pipeline,

a second input, and
an output;

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15 program counter means comprising:
 an input, and
 an output coupled to said input of
said memory;
 control logic means for determining
20 whether information received on said input data path is
setup data or program data, said control logic means
comprising:
 a first input coupled to said
output of said execution pipeline,
25 a second input coupled to said
output of said memory,
 a third input coupled to said
output of said program counter,
 a first output coupled to said
30 program counter input, and
 a second output; and
 register file means for providing input
data to said execution pipeline and for storing output
data from said execution pipeline, said register file
35 means comprising:
 a first input coupled to said
output of said execution pipeline,
 a second input coupled to said
second output of said control logic, and
40 an output coupled to said second
input of said execution pipeline.